



Nine Mile Point  
Nuclear Station

September 26, 2002  
NMPE 0334

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

RE: Nine Mile Point Unit 2  
Docket No. 50-410  
NPF-69

***Subject: January – June 2002 Radioactive Effluent Release Report***

Gentlemen:

In conformance with the Nine Mile Point Unit 2 (NMP2) Technical Specifications, enclosed is the Radioactive Effluent Release Report for the period January through June 2002. Included in this report is a summary of gaseous, liquid and solid effluents released from the station during the reporting period (Attachments 1 through 6), a summary of any revisions to the Offsite Dose Calculation Manual and the Process Control Program during the reporting period (Attachments 7 and 8), and an explanation as to the cause and corrective actions regarding the inoperability of any station liquid and/or gaseous effluent monitoring instrumentation (Attachment 9).

Attachment 10 to this report provides an update of actual data for the last quarter of the preceding report period. Attachment 11 to this report provides a correction to the calculated whole body dose and skin dose to a member of the public due to shoreline recreational activities located outside the site boundary reported in the previous report period.

The format used for the effluent data is outlined in Appendix B of Regulatory Guide 1.21, Revision 1. Dose assessments were made in accordance with the NMP2 Offsite Dose Calculation Manual. Distribution is in accordance with 10CFR50.4(b)(1).

During the reporting period from January – June 2002, NMP2 did not exceed any 10CFR20, 10CFR50, or Offsite Dose Calculation Manual limits for gaseous or liquid effluents.

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If you have any questions concerning the attached report, please contact Mr. Anthony M. Salvagno at (315) 349-1456.

Very truly yours,

A handwritten signature in black ink, appearing to read "Bruce S. Montgomery". The signature is fluid and cursive, with a large initial "B" and a long, sweeping underline.

Bruce S. Montgomery  
General Manager Nuclear Engineering

BSM/CW/jm  
Enclosures

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cc: Mr. H. J. Miller, Regional Administrator, Region 1  
Mr. G. K. Hunegs, NRC Senior Resident Inspector, Region 1  
Mr. P. S. Tam, Senior Project Manager, NRR (2 copies)

**NINE MILE POINT NUCLEAR STATION - UNIT 2**  
**RADIOACTIVE EFFLUENT RELEASE REPORT**

*January – June 2002*

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**Constellation  
Generation Group**

**Nine Mile Point  
Nuclear Station**

*A Member of the  
Constellation Energy Group*

## NINE MILE POINT NUCLEAR STATION - UNIT 2

### RADIOACTIVE EFFLUENT RELEASE REPORT

JANUARY - JUNE 2002

#### *SUPPLEMENTAL INFORMATION*

**Facility:**     Nine Mile Point Unit 2     **Licensee:**     Nine Mile Point Nuclear Station, LLC

1. **TECHNICAL SPECIFICATION PROGRAM** - (ODCM Limits - Radioactive Effluent Controls Program)

A) **FISSION AND ACTIVATION GASES**

1. The dose rate limit of noble gases released in gaseous effluents from the site to areas at or beyond the site boundary shall be less than or equal to 500 mrem/year to the whole body and less than or equal to 3000 mrem/year to the skin.
2. The air dose from noble gases released in gaseous effluents from Nine Mile Point Unit 2 to areas at or beyond the site boundary shall be limited during any calendar quarter to less than or equal to 5 mrad for gamma radiation and less than or equal to 10 mrad for beta radiation, and during any calendar year to less than or equal to 10 mrad for gamma radiation and less than or equal to 20 mrad for beta radiation.

B&C) **TRITIUM, IODINES AND PARTICULATES, HALF LIVES > 8 DAYS**

1. The dose rate limit of Iodine-131, Iodine-133, Tritium and all radionuclides in particulate form with half-lives greater than eight days, released in gaseous effluents from the site to areas at or beyond the site boundary shall be less than or equal to 1500 mrem/year to any organ.
2. The dose to a member of the public from Iodine-131, Iodine-133, Tritium and all radionuclides in particulate form with half-lives greater than eight days in gaseous effluents released from Nine Mile Point Unit 2 to areas at or beyond the site boundary shall be limited during any calendar quarter to less than or equal to 7.5 mrem to any organ, and during any calendar year to less than or equal to 15 mrem to any organ.

D) **LIQUID EFFLUENTS**

1. The concentration of radioactive material released in the liquid effluents to unrestricted areas shall be limited to ten times the concentrations specified in 10CFR Part 20.1001-20.2402, Appendix B, Table 2, Column 2 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to 2E-04 microcuries/ml total activity.

2. The dose or dose commitment to a member of the public from radioactive materials in liquid effluents released from Nine Mile Point Unit 2 to unrestricted areas shall be limited during any calendar quarter to less than or equal to 1.5 mrem to the whole body and to less than or equal to 5 mrem to any organ, and during any calendar year to less than or equal to 3 mrem to the whole body and to less than or equal to 10 mrem to any organ.

## 2. MEASUREMENTS AND APPROXIMATIONS OF TOTAL RADIOACTIVITY

Described below are the methods used to measure or approximate the total radioactivity and radionuclide composition in effluents.

### A) FISSION AND ACTIVATION GASES

Noble gas effluent activity is determined by on-line gamma spectroscopic monitoring of an isokinetic sample stream.

### B) IODINES

Iodine effluent activity is determined by gamma spectroscopic analysis once every seven days of charcoal cartridges sampled from an isokinetic sample stream.

### C) PARTICULATES

Activity released from the main stack and the combined Radwaste/Reactor Building vent is determined by gamma spectroscopic analysis once every seven days of particulate filters sampled from an isokinetic sample stream and composite analysis of the filters for non-gamma emitters.

### D) TRITIUM

Tritium effluent activity is measured by liquid scintillation or gas proportional counting of samples taken once every 31 days with an air sparging/water trap apparatus.

### E) LIQUID EFFLUENTS

Isotopic contents of liquid effluents are determined by isotopic analysis of a representative sample of each batch and composite analysis of non-gamma emitters.

### F) SOLID EFFLUENTS

Isotopic contents of waste shipments are determined by gamma spectroscopy analyses of a representative sample of each batch. Scaling factors established from primary composite sample analyses conducted off-site are applied, where appropriate, to find estimated concentration of non-gamma emitters. For low activity trash shipments, curie content is estimated by dose rate measurement and application of appropriate scaling factors.

# ATTACHMENT 1

## Summary Data

Page 1 of 2

Unit 1 <input type="checkbox"/>	Unit 2 <input checked="" type="checkbox"/>	Reporting Period <u>January – June 2002</u>			
<b>Liquid Effluents:</b>					
10CFR20.1001-20.2402, Appendix B, Table 2, Column 2 <sup>1</sup>					
Average MEC - $\mu\text{Ci/ml}$ (Qtr. 1) = <u>5.76E-03</u>		Average MEC - $\mu\text{Ci/ml}$ (Qtr. 3) = <u>N/A</u>			
Average MEC - $\mu\text{Ci/ml}$ (Qtr. 2) = <u>3.34E-03</u>		Average MEC - $\mu\text{Ci/ml}$ (Qtr. 4) = <u>N/A</u>			
<b>Average Energy (Fission and Activation gases – Mev):</b>					
Qtr. 1 :	$\bar{E}_\gamma$ = <u>4.27E-01</u>	$\bar{E}_p$ = <u>2.79E-01</u>			
Qtr. 2 :	$\bar{E}_\gamma$ = <u>5.45E-01</u>	$\bar{E}_p$ = <u>3.93E-01</u>			
Qtr. 3 :	$\bar{E}_\gamma$ = <u>N/A</u>	$\bar{E}_p$ = <u>N/A</u>			
Qtr. 4 :	$\bar{E}_\gamma$ = <u>N/A</u>	$\bar{E}_p$ = <u>N/A</u>			
<b>Liquid:</b>					
Number of batch releases	:	<u>35</u>			
Total time period for batch releases (hrs)	:	<u>1.14E+02</u>			
Maximum time period for a batch release (hrs)	:	<u>3.33E+00</u>			
Average time period for a batch release (hrs)	:	<u>3.25E+00</u>			
Minimum time period for a batch release (hrs)	:	<u>3.15E+00</u>			
Total volume of water used to dilute the liquid effluent during the release		<u>1<sup>st</sup></u>	<u>2<sup>nd</sup></u>	<u>3<sup>rd</sup></u>	<u>4<sup>th</sup></u>
period (L)	:	<u>2.42E+08</u>	<u>4.27E+08</u>	<u>N/A</u>	<u>N/A</u>
Total volume of water used to dilute the liquid effluent during reporting		<u>1<sup>st</sup></u>	<u>2<sup>nd</sup></u>	<u>3<sup>rd</sup></u>	<u>4<sup>th</sup></u>
Period (L)	:	<u>1.13E+10</u>	<u>1.32E+10</u>	<u>N/A</u>	<u>N/A</u>
<b>Gaseous (Emergency Condenser Vent): "Not Applicable for Unit 2"</b>					
Number of batch releases	:	<u>N/A</u>			
Total time period for batch releases (hrs)	:	<u>N/A</u>			
Maximum time period for a batch release (hrs)	:	<u>N/A</u>			
Average time period for a batch release (hrs)	:	<u>N/A</u>			
Minimum time period for a batch release (hrs)	:	<u>N/A</u>			
<b>Gaseous (Primary Containment Purge):</b>					
Number of batch releases	:	<u>8</u>			
Total time period for batch releases (hrs)	:	<u>2.58E+02</u>			
Maximum time period for a batch release (hrs)	:	<u>1.08E+02</u>			
Average time period for a batch release (hrs)	:	<u>3.22E+01</u>			
Minimum time period for a batch release (hrs)	:	<u>4.67E+00</u>			
<sup>1</sup> Improved Technical Specifications limit the concentration of radioactive material released in the liquid effluents to unrestricted areas to ten times the concentrations specified in 10CFR20.1001-20.2402, Appendix B, Table 2, Column 2. Maximum Effluent Concentrations (MEC) numerically equal to ten times the 10CFR20.1001-20.2402 concentrations were adopted to evaluate liquid effluents.					

**ATTACHMENT 1****Summary Data****Page 2 of 2**

Unit 1 <input type="checkbox"/> Unit 2 <input checked="" type="checkbox"/>		Reporting Period <u>January – June 2002</u>
Abnormal Releases: There were no abnormal releases during this report period.		
A. Liquids:		
Number of releases	<u>0</u>	
Total activity released	<u>N/A</u> Ci	
B. Gaseous:		
Number of releases	<u>0</u>	
Total activity released	<u>N/A</u> Ci	

Unit 1      Unit 2 XReporting Period January – June 2002

## GASEOUS EFFLUENTS – SUMMATION OF ALL RELEASES, ELEVATED AND GROUND LEVEL

			<u>1st</u> <u>QUARTER</u>	<u>2nd</u> <u>QUARTER</u>	<u>3rd</u> <u>QUARTER</u>	<u>4th</u> <u>QUARTER</u> <u>R</u>	<u>EST.</u> <u>TOTAL</u> <u>ERROR, %</u>
A.	<u>Fission &amp; Activation gases</u>						
1.	Total release	Ci	<u>2.34E+00</u>	<u>1.29E+00</u>	<u>NA</u>	<u>NA</u>	5.00E+01
2.	Average release rate	μCi/sec	<u>3.02E-01</u>	<u>1.64E-01</u>	<u>NA</u>	<u>NA</u>	
B.	<u>Iodines</u>						
1.	Total Iodine-131	Ci	<u>1.69E-04</u>	<u>3.31E-06</u>	<u>NA</u>	<u>NA</u>	3.00E+01
2.	Average release rate for period	μCi/sec	<u>2.15E-05</u>	<u>4.21E-07</u>	<u>NA</u>	<u>NA</u>	
C.	<u>Particulates<sup>1</sup></u>						
1.	Particulates with half-lives > 8 days	Ci	<u>1.12E-03</u>	<u>1.38E-03</u>	<u>NA</u>	<u>NA</u>	3.00E+01
2.	Average release rate for period	μCi/sec	<u>1.42E-04</u>	<u>1.76E-04</u>	<u>NA</u>	<u>NA</u>	
3.	Gross alpha radioactivity	Ci	<u>1.88E-05</u>	<u>1.86E-05</u>	<u>NA</u>	<u>NA</u>	2.50E+01
D.	<u>Tritium<sup>1</sup></u>						
1.	Total release	Ci	<u>1.09E+01</u>	<u>7.18E+00</u>	<u>NA</u>	<u>NA</u>	5.00E+01
2.	Average release rate for period	μCi/sec	<u>1.40E+00</u>	<u>9.13E-01</u>	<u>NA</u>	<u>NA</u>	
E.	<u>Percent of Tech. Spec. Limits</u>						
	<u>Fission and Activation Gases</u>						
	Percent of Quarterly Gamma Air Dose Limit (5 mR)	%	<u>2.27E-03</u>	<u>1.65E-03</u>	<u>N/A</u>	<u>N/A</u>	
	Percent of Quarterly Beta Air Dose Limit (10 mrad)	%	<u>7.16E-05</u>	<u>5.51E-05</u>	<u>N/A</u>	<u>N/A</u>	
	Percent of Annual Gamma Air Dose Limit to Date (10 mR)	%	<u>1.13E-03</u>	<u>1.96E-03</u>	<u>N/A</u>	<u>N/A</u>	
	Percent of Annual Beta Air Dose Limit to Date (20 mrad)	%	<u>3.57E-05</u>	<u>6.29E-05</u>	<u>N/A</u>	<u>N/A</u>	
	Percent of Whole Body Dose Rate Limit (500 mrem/yr)	%	<u>8.93E-05</u>	<u>6.32E-05</u>	<u>N/A</u>	<u>N/A</u>	
	Percent of Skin Dose Rate Limit (3000 mrem/yr)	%	<u>1.79E-05</u>	<u>1.28E-05</u>	<u>N/A</u>	<u>N/A</u>	
	<u>Tritium, Iodines, and Particulates<sup>1</sup></u>						
	<u>(with half-lives greater than 8 days)</u>						
	Percent of Quarterly Dose Limit (7.5 mrem)	%	<u>4.78E-02</u>	<u>2.04E-02</u>	<u>N/A</u>	<u>N/A</u>	
	Percent of Annual Dose Limit (15 mrem)	%	<u>2.41E-02</u>	<u>3.80E-02</u>	<u>N/A</u>	<u>N/A</u>	
	Percent of Organ Dose Rate Limit (1500 mrem/yr)	%	<u>9.64E-04</u>	<u>4.09E-04</u>	<u>N/A</u>	<u>N/A</u>	

<sup>1</sup> Tritium, Iron-55, and Strontium results for the second quarter were not received from the off-site vendor at the time of this report. These values include estimates, and actual numbers will be provided in the next Radioactive Effluent Release Report.

Unit 1 ☐ Unit 2 ☒Reporting Period January – June 2002

## GASEOUS EFFLUENTS – ELEVATED RELEASE

CONTINUOUS MODE<sup>3</sup>

Nuclides Released			1st QUARTER	2nd QUARTER	3rd QUARTER	4th QUARTER
1.	<u>Fission Gases</u> <sup>1</sup>					
	Argon-41	Ci	<u>2.07E-01</u>	<u>2.53E-01</u>	<u>N/A</u>	<u>N/A</u>
	Krypton-85	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
	Krypton-85m	Ci	<u>1.77E+00</u>	<u>7.93E-01</u>	<u>N/A</u>	<u>N/A</u>
	Krypton-87	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
	Krypton-88	Ci	<u>2.03E-01</u>	<u>2.79E-02</u>	<u>N/A</u>	<u>N/A</u>
	Xenon-127	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
	Xenon-131m	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
	Xenon-133	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
	Xenon-133m	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
	Xenon-135	Ci	<u>8.10E-02</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
	Xenon-135m	Ci	<u>7.83E-02</u>	<u>1.29E-02</u>	<u>N/A</u>	<u>N/A</u>
	Xenon-137	Ci	<u>**</u>	<u>5.17E-02</u>	<u>N/A</u>	<u>N/A</u>
	Xenon-138	Ci	<u>**</u>	<u>1.52E-01</u>	<u>N/A</u>	<u>N/A</u>
2.	<u>Iodines</u> <sup>1</sup>					
	Iodine-131	Ci	<u>1.24E-04</u>	<u>3.31E-06</u>	<u>N/A</u>	<u>N/A</u>
	Iodine-133	Ci	<u>7.16E-05</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
	Iodine-135	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
3.	<u>Particulates</u> <sup>1,2</sup>					
	Strontium-89	Ci	<u>**</u>	<u>2.38E-05</u>	<u>N/A</u>	<u>N/A</u>
	Strontium-90	Ci	<u>**</u>	<u>4.51E-06</u>	<u>N/A</u>	<u>N/A</u>
	Cesium-134	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
	Cesium-137	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
	Cobalt-60	Ci	<u>2.08E-05</u>	<u>3.32E-05</u>	<u>N/A</u>	<u>N/A</u>
	Cobalt-58	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
	Manganese-54	Ci	<u>7.43E-06</u>	<u>1.08E-05</u>	<u>N/A</u>	<u>N/A</u>
	Barium-Lanthanum-140	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
	Antimony-125	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
	Niobium-95	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
	Cerium-141	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
	Cerium-144	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
	Iron-59	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
	Cesium-136	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
	Chromium-51	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
	Zinc-65	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
	Iron-55	Ci	<u>4.01E-05</u>	<u>3.90E-05</u>	<u>N/A</u>	<u>N/A</u>
	Molybdenum-99	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
	Silver-110m	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
4.	<u>Tritium</u> <sup>2</sup>	Ci	<u>9.25E+00</u>	<u>5.35E+00</u>	<u>N/A</u>	<u>N/A</u>

<sup>1</sup> Concentrations less than the lower limit of detection of the counting system used are indicated with a double asterisk. A lower limit of detection of 1.00E-04 µCi/ml for required noble gases, 1.00E-11 µCi/ml for required particulates, 1.00E-12 µCi/ml for required Iodines, and 1.00E-06 µCi/ml for Tritium, as required by the Off-Site Dose Calculation Manual (ODCM), has been verified.

<sup>2</sup> Tritium, Iron-55, and Strontium results for the second quarter were not received from the off-site vendor at the time of this report. These values include estimates. Actual values will be included in the next Radioactive Effluent Release Report.

<sup>3</sup> Contributions from purges are included.

Unit 1 ☐ Unit 2 ☒

Reporting Period January - June 2002

## GASEOUS EFFLUENTS - GROUND LEVEL RELEASES

			CONTINUOUS MODE			
			1st QUARTER	2nd QUARTER	3rd QUARTER	4th QUARTER
1.	<u>Fission Gases</u> <sup>1</sup>					
	Argon-41	Ci	**	**	N/A	N/A
	Krypton-85	Ci	**	**	N/A	N/A
	Krypton-85m	Ci	**	**	N/A	N/A
	Krypton-87	Ci	**	**	N/A	N/A
	Krypton-88	Ci	**	**	N/A	N/A
	Xenon-127	Ci	**	**	N/A	N/A
	Xenon-131m	Ci	**	**	N/A	N/A
	Xenon-133	Ci	**	**	N/A	N/A
	Xenon-133m	Ci	**	**	N/A	N/A
	Xenon-135	Ci	**	**	N/A	N/A
	Xenon-135m	Ci	**	**	N/A	N/A
	Xenon-137	Ci	**	**	N/A	N/A
	Xenon-138	Ci	**	**	N/A	N/A
2.	<u>Iodines</u> <sup>1</sup>					
	Iodine-131	Ci	4.45E-05	**	N/A	N/A
	Iodine-133	Ci	**	**	N/A	N/A
	Iodine-135	Ci	**	**	N/A	N/A
3.	<u>Particulates</u> <sup>1,2</sup>					
	Strontium-89	Ci	**	4.72E-05	N/A	N/A
	Strontium-90	Ci	**	8.77E-06	N/A	N/A
	Cesium-134	Ci	**	**	N/A	N/A
	Cesium-137	Ci	**	2.79E-06	N/A	N/A
	Cobalt-60	Ci	2.21E-04	2.75E-04	N/A	N/A
	Cobalt-58	Ci	4.83E-06	**	N/A	N/A
	Manganese-54	Ci	1.24E-04	2.26E-04	N/A	N/A
	Barium-Lanthanum-140	Ci	**	**	N/A	N/A
	Antimony-125	Ci	**	**	N/A	N/A
	Niobium-95	Ci	**	**	N/A	N/A
	Cerium-141	Ci	**	**	N/A	N/A
	Cerium-144	Ci	**	**	N/A	N/A
	Iron-59	Ci	**	1.43E-05	N/A	N/A
	Cesium-136	Ci	**	**	N/A	N/A
	Chromium-51	Ci	**	**	N/A	N/A
	Zinc-65	Ci	**	2.18E-05	N/A	N/A
	Iron-55	Ci	7.00E-04	6.73E-04	N/A	N/A
	Molybdenum-99	Ci	**	**	N/A	N/A
	Silver-110m	Ci	**	**	N/A	N/A
4.	<u>Tritium</u> <sup>2</sup>	Ci	1.69E+00	1.83E+00	N/A	N/A

<sup>1</sup> Concentrations less than the lower limit of detection of the counting system used are indicated with a double asterisk. A lower limit of detection of 1.00E-04  $\mu\text{Ci/ml}$  for required noble gases, 1.00E-11  $\mu\text{Ci/ml}$  for required particulates, 1.00E-12  $\mu\text{Ci/ml}$  for required iodines, and 1.00E-06  $\mu\text{Ci/ml}$  for Tritium, as required by the Off-Site Dose Calculation Manual (ODCM), has been verified.

<sup>2</sup> Tritium, Iron-55 and Strontium 89 and 90 results for the second quarter were not received from the off-site vendor at the time of this report. These values include estimates, and actual values will be included in the next Radioactive Effluent Release Report.

Unit 1 <input type="checkbox"/> Unit 2 <input checked="" type="checkbox"/>		Reporting Period <u>January – June 2002</u>			
GASEOUS EFFLUENTS – GROUND LEVEL RELEASES					
BATCH MODE					
There were no batch releases during the reporting period.					
		<u>1st</u> <u>QUARTER</u>	<u>2nd</u> <u>QUARTER</u>	<u>3rd</u> <u>QUARTER</u>	<u>4th</u> <u>QUARTER</u>
1.	<u>Fission Gases</u> <sup>1</sup>				
	Argon-41	Ci			
	Krypton-85	Ci			
	Krypton-85m	Ci			
	Krypton-87	Ci			
	Krypton-88	Ci			
	Xenon-127	Ci			
	Xenon-131m	Ci			
	Xenon-133	Ci			
	Xenon-133m	Ci			
	Xenon-135	Ci			
	Xenon-135m	Ci			
	Xenon-137	Ci			
	Xenon-138	Ci			
2.	<u>Iodines</u> <sup>1</sup>				
	Iodine-131	Ci			
	Iodine-133	Ci			
	Iodine-135	Ci			
3.	<u>Particulates</u> <sup>1,2</sup>				
	Strontium-89	Ci			
	Strontium-90	Ci			
	Cesium-134	Ci			
	Cesium-137	Ci			
	Cobalt-60	Ci			
	Cobalt-58	Ci			
	Manganese-54	Ci			
	Barium-Lanthanum-140	Ci			
	Antimony-125	Ci			
	Niobium-95	Ci			
	Cerium-141	Ci			
	Cerium-144	Ci			
	Iron-59	Ci			
	Cesium-136	Ci			
	Chromium-51	Ci			
	Zinc-65	Ci			
	Iron-55	Ci			
	Molybdenum-99	Ci			
	Silver-110m	Ci			
4.	<u>Tritium</u> <sup>2</sup>	Ci			

<sup>1</sup> Concentrations less than the lower limit of detection of the counting system used are indicated with a double asterisk. A lower limit of detection of 1.00E-04  $\mu\text{Ci}/\text{ml}$  for required noble gases, 1.00E-11  $\mu\text{Ci}/\text{ml}$  for required particulates, 1.00E-12  $\mu\text{Ci}/\text{ml}$  for required iodines, and 1.00E-06  $\mu\text{Ci}/\text{ml}$  for Tritium, as required by the Off-Site Dose Calculation Manual (ODCM), has been verified.

<sup>2</sup> Tritium, Iron-55 and Strontium 89 and 90 results for the second quarter were not received from the off-site vendor at the time of this report. These values include estimates, and actual values will be included in the next Radioactive Effluent Release Report.

## ATTACHMENT 5

Page 1 of 2

Unit 1 <input type="checkbox"/> Unit 2 <input checked="" type="checkbox"/>		Reporting Period <u>January – June 2002</u>					
LIQUID EFFLUENTS – SUMMATION OF ALL RELEASES							
		1st QUARTER	2nd QUARTER	3rd QUARTER	4th QUARTER	EST. TOTAL ERROR, %	
A.	<u>Fission &amp; Activation Products<sup>1</sup></u>						
1.	Total release (not including Tritium, gases, alpha)	Ci	<u>3.33E-02</u>	<u>8.81E-02</u>	<u>N/A</u>	<u>N/A</u>	5.00E+01
2.	Average diluted concentration during reporting period	µCi/ml	<u>2.94E-09</u>	<u>6.66E-09</u>	<u>N/A</u>	<u>N/A</u>	
B.	<u>Tritium<sup>1</sup></u>						
1.	Total release	Ci	<u>4.69E+00</u>	<u>6.22E+00</u>	<u>N/A</u>	<u>N/A</u>	5.00E+01
2.	Average diluted concentration during reporting period	µCi/ml	<u>4.14E-07</u>	<u>4.70E-07</u>	<u>N/A</u>	<u>N/A</u>	
C.	<u>Dissolved and Entrained Gases<sup>3</sup></u>						
1.	Total release	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>	5.00E+01
2.	Average diluted concentration during reporting period	µCi/ml	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>	
D.	<u>Gross Alpha Radioactivity<sup>3</sup></u>						
1.	Total release	Ci	<u>6.44E-05</u>	<u>9.46E-05</u>	<u>N/A</u>	<u>N/A</u>	5.00E+01
E.	<u>Volumes</u>						
1.	Prior to dilution	Liters	<u>1.24E+06</u>	<u>1.85E+06</u>	<u>N/A</u>	<u>N/A</u>	5.00E+01
2.	Volume of dilution water used during release period	Liters	<u>2.42E+08</u>	<u>4.27E+08</u>	<u>N/A</u>	<u>N/A</u>	5.00E+01
3.	Volume of dilution water available during reporting period:	Liters	<u>1.13E+10</u>	<u>1.32E+10</u>	<u>N/A</u>	<u>N/A</u>	5.00E+01
F.	<u>Percent of Technical Specification Limits</u>						
	Percent of Quarterly Whole Body Dose Limit (1.5 mrem)	%	<u>2.25E-01</u>	<u>4.16E-01</u>	<u>N/A</u>	<u>N/A</u>	
	Percent of Quarterly Organ Dose Limit (5 mrem)	%	<u>2.79E-01</u>	<u>5.60E-01</u>	<u>N/A</u>	<u>N/A</u>	
	Percent of Annual Whole Body Dose Limit to Date (3 mrem)	%	<u>1.13E-01</u>	<u>3.19E-01</u>	<u>N/A</u>	<u>N/A</u>	
	Percent of Annual Organ Dose Limit to Date (10 mrem)	%	<u>1.40E-01</u>	<u>4.17E-01</u>	<u>N/A</u>	<u>N/A</u>	
	Percent of 10CFR20 Concentration Limit <sup>2,4</sup>	%	<u>7.25E-03</u>	<u>1.43E-02</u>	<u>N/A</u>	<u>N/A</u>	
	Percent of Dissolved or Entrained Noble Gas Limit (2.00E-04 µCi/ml) <sup>3,4</sup>	%	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>	

<sup>1</sup> Iron-55, Strontium 89 and 90 and Tritium results for the second quarter were not received from the off-site vendor at the time of this report. These values include estimates, and actual values will be included in the next Radioactive Effluent Release Report.

<sup>2</sup> The percent of 10CFR20 concentration limit is based on the average concentration during the quarter.

<sup>3</sup> Concentrations less than the lower limit of detection of the counting system used are indicated with a double asterisk. A lower limit of detection of 5.00E-07 µCi/ml for required gamma emitting nuclides, 1.00E-05 µCi/ml for required dissolved and entrained noble gases and Tritium, 5.00E-08 µCi/ml for Sr-89/90, 1.00E-06 µCi/ml for Fe-55 and 1.00E-07 µCi/ml for gross alpha radioactivity, as required by the Off-Site Dose Calculation Manual (ODCM), has been verified.

<sup>4</sup> Improved Technical Specifications limit the concentration of radioactive material released in the liquid effluents to unrestricted areas to ten times the concentrations specified in 10CFR20.1001-20.2402, Appendix B, Table 2, Column 2. Maximum Effluent Concentrations (MEC) numerically equal to ten times the 10CFR20.1001-20 2402 concentrations were adopted to evaluate liquid effluents.

<sup>1</sup> Iron-55, Strontium 89 and 90 and Tritium results for the second quarter were not received from the off-site vendor at the time of this report. These values include estimates, and actual values will be included in the next Radioactive Effluent Release Report.

<sup>2</sup> The percent of 10CFR20 concentration limit is based on the average concentration during the quarter.

<sup>3</sup> Concentrations less than the lower limit of detection of the counting system used are indicated with a double asterisk. A lower limit of detection of 5.00E-07 µCi/ml for required gamma emitting nuclides, 1.00E-05 µCi/ml for required dissolved and entrained noble gases and Tritium, 5.00E-08 µCi/ml for Sr-89/90, 1.00E-06 µCi/ml for Fe-55 and 1.00E-07 µCi/ml for gross alpha radioactivity, as required by the Off-Site Dose Calculation Manual (ODCM), has been verified.

<sup>4</sup> Improved Technical Specifications limit the concentration of radioactive material released in the liquid effluents to unrestricted areas to ten times the concentrations specified in 10CFR20.1001-20.2402, Appendix B, Table 2, Column 2. Maximum Effluent Concentrations (MEC) numerically equal to ten times the 10CFR20.1001-20.2402 concentrations were adopted to evaluate liquid effluents.

## ATTACHMENT 5

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Unit 1 <u>    </u> Unit 2 <u>X</u>		Reporting Period <u>January – June 2002</u>			
LIQUID EFFLUENTS RELEASED					
BATCH MODE <sup>3</sup>					
Nuclides Released <sup>1,2</sup>		1st QUARTER	2nd QUARTER	3rd QUARTER	4th QUARTER
Silver-110m	Ci	<u>1.06E-04</u>	<u>1.04E-03</u>	<u>N/A</u>	<u>N/A</u>
Arsenic-76	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Gold-199	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Barium-140	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Cerium-141	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Cerium-144	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Cobalt-58	Ci	<u>3.01E-04</u>	<u>1.91E-03</u>	<u>N/A</u>	<u>N/A</u>
Cobalt-60	Ci	<u>8.27E-03</u>	<u>2.88E-02</u>	<u>N/A</u>	<u>N/A</u>
Chromium-51	Ci	<u>6.27E-04</u>	<u>3.42E-03</u>	<u>N/A</u>	<u>N/A</u>
Cesium-134	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Cesium-136	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Cesium-137	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Copper-64	Ci	<u>**</u>	<u>4.71E-05</u>	<u>N/A</u>	<u>N/A</u>
Iron-55	Ci	<u>1.19E-02</u>	<u>3.58E-03</u>	<u>N/A</u>	<u>N/A</u>
Iron-59	Ci	<u>8.86E-04</u>	<u>5.53E-03</u>	<u>N/A</u>	<u>N/A</u>
Iodine-131	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Iodine-132	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Iodine-133	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Lanthanum-140	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Manganese-54	Ci	<u>1.03E-02</u>	<u>3.94E-02</u>	<u>N/A</u>	<u>N/A</u>
Manganese-56	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Molybdenum-99	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Sodium-24	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Niobium-95	Ci	<u>**</u>	<u>3.61E-05</u>	<u>N/A</u>	<u>N/A</u>
Nickel-65	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Neptunium-239	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Antimony-124	Ci	<u>**</u>	<u>3.51E-04</u>	<u>N/A</u>	<u>N/A</u>
Strontium-89	Ci	<u>**</u>	<u>1.40E-05</u>	<u>N/A</u>	<u>N/A</u>
Strontium-90	Ci	<u>**</u>	<u>6.34E-06</u>	<u>N/A</u>	<u>N/A</u>
Strontium-92	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Technecium-99m	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Tellurium-132	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Tungsten-187	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Zinc-65	Ci	<u>8.48E-04</u>	<u>3.98E-03</u>	<u>N/A</u>	<u>N/A</u>
Zinc-69m	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Zirconium-95	Ci	<u>**</u>	<u>4.02E-05</u>	<u>N/A</u>	<u>N/A</u>
Zirconium-97	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Dissolved or Entrained Gases <sup>1</sup>	Ci	<u>**</u>	<u>**</u>	<u>N/A</u>	<u>N/A</u>
Tritium <sup>2</sup>	Ci	<u>4.69E+00</u>	<u>6.22E+00</u>	<u>N/A</u>	<u>N/A</u>

1

Concentrations less than the lower limit of detection of the counting system used are indicated with a double asterisk. A lower limit of detection of 5.00E-07 µCi/ml for required gamma emitting nuclides, 1.00E-05 µCi/ml for required dissolved and entrained noble gases and Tritium, 5.00E-08 µCi/ml for Sr-89/90, 1.00E-06 µCi/ml for Fe-55 and 1.00E-07 µCi/ml for gross alpha radioactivity, as required by the Off-Site Dose Calculation Manual (ODCM), has been verified.

2

Iron-55, Strontium 89 and 90 and Tritium results for the second quarter were not received from the off-site vendor at the time of this report. These values include estimates, and actual values will be included in the next Radioactive Effluent Release Report.

3

No continuous mode releases occurred during the reporting period.

# ATTACHMENT 6

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Unit 1 <u>    </u> Unit 2 <u>X</u>		Reporting Period <u>January – June 2002</u>				
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS						
A. TYPE	Volume (m <sup>3</sup> )			Activity <sup>1</sup> (Ci)		
	Class			Class		
	A	B	C	A	B	C
1. Spent Resins (Dewatered)	<u>5.83E+00</u>	<u>0</u>	<u>0</u>	<u>2.07E+01</u>	<u>0</u>	<u>0</u>
2. Dry Active Waste	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
3. Irradiated Components, Control Rods, etc.	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
4. Other: (to Vendor for Processing or Consolidation)						
a. Dry Active Waste (Compactible and Non-Compactible)	<u>4.51E+02</u>	<u>0</u>	<u>0</u>	<u>6.54E+00</u>	<u>0</u>	<u>0</u>
b. Spent Resins (Dewatered)	<u>4.05E+01</u>	<u>0</u>	<u>0</u>	<u>1.92E+02</u>	<u>0</u>	<u>0</u>
c. Other Waste (Contaminated Oil)	<u>6.80E+01</u>	<u>0</u>	<u>0</u>	<u>1.42E-02</u>	<u>0</u>	<u>0</u>
<sup>1</sup> The estimated total error is 5.00E+01%.						

## ATTACHMENT 6

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Unit 1 <input type="checkbox"/> Unit 2 <input checked="" type="checkbox"/>		Reporting Period <u>January – June 2002</u>	
<b>SOLID WASTE AND IRRADIATED FUEL SHIPMENTS</b>			
A.1 TYPE	<u>Container</u>	<u>Package</u>	<u>Solidification Agent</u>
1. Spent Resins (Dewatered)	<u>HIC – Poly</u>	<u>STP</u>	<u>None</u>
2. Dry Active Waste (Compactible and Non-Compactible)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
3. Irradiated Components, Control Rods, etc.	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
4. Other: (To Vendor for Processing or Consolidation)			
a. Dry Active Waste (Compactible and Non-Compactible)	<u>Metal Box</u>	<u>STP</u>	<u>None</u>
b. Spent Resins (Dewatered)	<u>HIC</u> <u>HIC</u>	<u>STP</u> <u>Type A</u>	<u>None</u> <u>None</u>
c. Mixed Waste (Contaminated Oil)	<u>Metal Box</u>	<u>STP</u>	<u>None</u>

# ATTACHMENT 6

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Unit 1 <input type="checkbox"/> Unit 2 <input checked="" type="checkbox"/>		Reporting Period <u>January – June 2002</u>
<b>SOLID WASTE AND IRRADIATED FUEL SHIPMENTS</b>		
<b>A.2 ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)</b>		
<b>1. Spent Resins (Dewatered):</b>		
<u>Nuclide</u> (1) Fe-55 (2) Co-60 (3) Mn-54 (4) Zn-65 (5) Fe-59 (6) Co-58 (7) Other	<u>Percent</u> 4.32E+01 2.42E+01 1.98E+01 7.25E+00 2.01E+00 1.68E+00 1.86E+00	
<b>2. Dry Compressible Waste:</b>		
<u>Nuclide</u>	<u>Percent</u>	
<b>3. Irradiated Components, Control Rods, etc.:</b>		
<u>Nuclide</u>	<u>Percent</u>	
<b>4. Other: (to Vendor for Processing or Consolidation)</b>		
<b>a. Dry Active Waste (Compactible and Non-Compactible)</b>		
<u>Nuclide</u> (1) Fe-55 (2) Co-60 (3) Zn-65 (4) Mn-54 (5) Cr-51 (6) Fe-59 (7) Other	<u>Percent</u> 5.85E+01 1.48E+01 1.37E+01 6.86E+00 3.04E+00 1.65E+00 1.45E+00	
<b>b. Spent Resins (Dewatered)</b>		
<u>Nuclide</u> (1) Co-60 (2) Fe-55 (3) Mn-54 (4) Zn-65 (5) Ni-63 (6) Fe-59 (7) Co-58 (8) Other	<u>Percent</u> 3.47E+01 3.46E+01 1.40E+01 1.06E+01 1.66E+00 1.08E+00 1.01E+00 2.35E+00	
<b>c. Mixed Waste (Contaminated Oil)</b>		
<u>Nuclide</u> (1) Fe-55 (2) Mn-54 (3) Co-60 (4) Cr-51 (5) Fe-59 (6) Zn-65 (7) Co-58 (8) Other	<u>Percent</u> 6.67E+01 1.11E+01 9.02E+00 6.17E+00 3.41E+00 1.79E+00 1.01E+00 8.00E-01	

## ATTACHMENT 6

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Unit 1 ☐ Unit 2 ☒Reporting Period January – June 2002

## SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

## A.3. SOLID WASTE DISPOSITION

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
<u>9</u>	<u>Truck</u>	<u>GTS Duratek</u> <u>Oak Ridge, TN</u>
<u>5</u>	<u>Truck</u>	<u>GTS Duratek</u> <u>Kingston, TN</u>
<u>2</u>	<u>Truck</u>	<u>Studsvik Processing Facility, LLC</u> <u>Erwin, TN</u>
<u>1</u>	<u>Truck</u>	<u>Barnwell Waste Management</u> <u>Facility</u> <u>Barnwell, SC</u>

## B. IRRADIATED FUEL SHIPMENTS (DISPOSITION): There were no shipments.

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
<u>0</u>	<u>N/A</u>	<u>N/A</u>

Unit 1      Unit 2 XReporting Period January – June 2002**SOLID WASTE AND IRRADIATED FUEL SHIPMENTS****C. SOLID WASTE SHIPPED OFF-SITE TO VENDORS FOR PROCESSING AND SUBSEQUENT BURIAL**

Below is a summary of NMP-2 radwaste buried by vendor facilities during January – June 2002. These totals were reported separately from "10CFR61 Solid Waste Shipped for Burial" since (a) waste classification and burial was performed by the vendors, and (b) Improved Technical Specification (ITS) Section 5.6.3 requires reporting of "information for each class of solid waste (as defined by 10CFR61) shipped off-site during the reporting period." The following data represents the actual shipments made from the off-site vendors of our radwaste (e.g., non-compacted trash, dry non-compressible waste, scrap metal, and resins) that were processed and commingled prior to burial.

C.1. TYPE OF WASTE – Non-compacted trash, dry non-compressible waste, scrap metals, and resins processed by vendor facilities prior to burial.

Burial Volume (m <sup>3</sup> )	Activity (Ci)	Est. Total Error, %
<u>1.77E+01</u>	<u>9.11E+01</u>	<u>5.00E+01</u>

**C.2 ESTIMATE OF MAJOR NUCLIDE COMPOSITION**

<u>Nuclide</u>	<u>Percent</u>
(1) Fe-55	<u>4.29E+01</u>
(2) Co-60	<u>2.37E+01</u>
(3) Mn-54	<u>1.75E+01</u>
(4) Zn-65	<u>1.16E+01</u>
(5) Fe-59	<u>1.21E+00</u>
(6) Co-58	<u>1.13E+00</u>
(7) Other	<u>1.96E+00</u>

**C.3 SOLID WASTE DISPOSITION**

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
<u>26</u>	<u>Truck</u>	<u>Envirocare, UT</u>
<u>7</u>	<u>Truck</u>	<u>Barnwell, SC</u>

# ATTACHMENT 6

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Unit 1 <input type="checkbox"/>		Unit 2 <input checked="" type="checkbox"/>		Reporting Period <u>January - June 2002</u>	
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS					
D. SEWAGE WASTES SHIPPED TO A TREATMENT FACILITY FOR PROCESSING AND BURIAL					
There was no sewage sludge shipped off site during the reporting period.					
D. 1 TYPE OF WASTE – Sewage Sludge	Burial Volume (m <sup>3</sup> ) <u>N/A</u>	Activity (Ci) <u>N/A</u>	Est. Total Error, % <u>5.00E+01</u>		
D. 2 ESTIMATE OF MAJOR NUCLIDE COMPOSITION					
<u>Nuclide</u>	<u>Percent</u>				
D. 3 SOLID WASTE DISPOSITION					
<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>			
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>			

Unit 1 ☐ Unit 2 ☒Reporting Period January – June 2002**SUMMARY OF CHANGES TO THE OFF-SITE DOSE CALCULATION MANUAL (ODCM)**

There were no revisions to the ODCM during the reporting period.

**ATTACHMENT 8****Page 1 of 1**Unit 1 ☐ Unit 2 ☒Reporting Period January – June 2002**SUMMARY OF CHANGES TO THE PROCESS CONTROL PROGRAM (RPCP)**

There were no changes to the RPCP during this reporting period.

**ATTACHMENT 9**

Page 1 of 1

Unit 1 ☐ Unit 2 ☒Reporting Period January – June 2002**SUMMARY OF INOPERABLE MONITORS**

There were no inoperable monitors for a period greater than 30 days during the reporting period.

Unit 1 <input type="checkbox"/> Unit 2 <input checked="" type="checkbox"/>		Reporting Period <u>January – December 2001</u>	
<b>UPDATE OF RELEASE AND DOSE DATA FOR GASEOUS (ELEVATED AND GROUND LEVEL) AND LIQUID EFFLUENTS</b>			
Update of data using actual results from the off-site vendors for Strontium, Tritium, and Iron-55 and corrections for the fourth quarter 2001.			
		<b>GASEOUS</b> <b>4th QUARTER 2001</b>	<b>LIQUID</b> <b>4th QUARTER 2001</b>
<u>Nuclide<sup>1</sup></u>		<u>Activity (Ci)</u>	<u>Activity (Ci)</u>
Sr-89		**	**
Sr-90		**	**
H-3		<u>7.50E+00</u>	<u>1.15E+01</u>
Fe-55		<u>7.01E-04</u>	<u>4.85E-03</u>
Fe-59 <sup>4</sup>		<u>N/A</u>	<u>4.61E-03</u>
Average MEC $\mu\text{Ci/ml}$		<u>N/A</u>	<u>6.11E-03</u>
<u>Particulates</u>		<b>GASEOUS</b> <b>4th QUARTER</b>	<b>LIQUID</b> <b>4th QUARTER</b>
1. Particulates with half-lives >8 days	Ci	<u>1.16E-03</u>	<u>7.05E-02</u>
2. Average release rate (gaseous) or diluted concentration (liquid) for reporting period	$\mu\text{Ci/sec}$ (gaseous) $\mu\text{Ci/ml}$ (liquid)	<u>1.48E-04</u>	<u>5.07E-09</u>
<u>Tritium</u>			
1. Total release	Ci	<u>7.50E+00</u>	<u>1.15E+01</u>
2. Average release rate for period (gaseous) or diluted concentration (liquids) for the reporting period	$\mu\text{Ci/sec}$ (gaseous) $\mu\text{Ci/ml}$ (liquid)	<u>9.52E-01</u>	<u>8.27E-07</u>
<u>Tritium, Iodines, and Particulates (with half-lives greater than 8 days)<sup>1</sup></u>		<b>GASEOUS</b> <b>4th QUARTER</b>	<b>LIQUID</b> <b>4th QUARTER</b>
1. Percent of Quarterly <sup>2</sup>	%	<u>1.19E-01</u> (Quarterly)	<u>2.18E-01</u> (Quarterly)
Dose Limit (Gaseous – 7.5 mrem, Liquid – 1.5 mrem)			
2. Percent of Annual <sup>2</sup>	%	<u>8.87E-02</u> (Annual)	<u>2.37E-01</u> (Annual)
Dose Limit to Date (Gaseous – 15 mrem, Liquid – 3 mrem)			
3. Percent of Organ	%	<u>2.39E-03</u> Quarterly	<u>3.67E-01</u> (Quarterly)
- Dose Rate Limit			<u>3.46E-01</u>
(Gaseous – 1500 mrem/yr)			(Annual)
- Dose Limit (Liquid – 5 mrem Quarter, 10 mrem Annual)			
4. Percent of 10CFR20 <sup>3</sup>	%	<u>N/A</u>	<u>1.36E-02</u>
Concentration Limit (Liquid)			(Quarterly)
5. Percent of Dissolved or Entrained Noble Gas (Liquid – 2.00E-04 $\mu\text{Ci/ml}$ )	%	<u>N/A</u>	** (Quarterly)
<sup>1</sup> Concentrations less than the lower limit of detection, as required by the Off-Site Dose Calculation Manual (ODCM) are indicated with a double asterisk. <sup>2</sup> The dose is to the whole body for liquid effluents and to the maximally exposed organ for gaseous effluents. <sup>3</sup> The percent of the 10CFR20 concentration limit is based on the average concentration during the quarter. <sup>4</sup> Fe-59 was updated to correct a typographical error for liquid releases. Gaseous release of Fe-59 was correct.			

Unit 1      Unit 2 XReporting Period January – December 2001**UPDATE OF DOSES TO MEMBERS OF THE PUBLIC DUE TO THEIR ACTIVITIES OUTSIDE THE SITE BOUNDARY FOR 2001**

The total whole body and skin dose from shoreline recreational activities for 2001 were previously reported in the January – December 2001 Radioactive Effluent Release Report as 7.51E-04 mRem whole body and 8.77E-04 mRem skin dose. As a result of a calculation error and updated analysis results the correct total whole body and skin dose from shoreline recreational activities for 2001 are 2.26E-04 mRem whole body and 2.64E-04 mRem skin dose.

The calculation error resulted in the whole body and skin doses being reported higher than their correct values. This error has been entered into our corrective action program.